

DATE: March 2012

TO: Brianne Blackburn, Division of Agriculture

FROM: Gino Graziano, Invasive Plants Instructor

RE: Anchorage area, Glenn and Seward highway thistle management recommendations

This recommendation is being prepared for the use of one of three herbicides on roadside rights-of-way for the control of Canada thistle (*Cirsium arvense*). This recommendation is not intended to replace the applicators responsibility to read and understand the label to make informed decisions about the appropriate herbicide for the site and pest.

Herbicides recommended

Escalade2	EPA Registration Number 228-442
Aquamaster	EPA Registration Number 524-343
Transline	EPA Registration Number 62719-259

The variation in chemicals is recommended for use in specific areas as specified by the labels. These should accommodate the varying site conditions found in the Anchorage area. Below is a summary of where each chemical is intended for use.

Product	Residential or commercial landscape	Roadside	Near water	Around trees
Escalade2	Yes	Yes	No	Yes
Aquamaster	Yes	Yes	Yes	Yes
Transline	No	Yes	No	Yes

Label application rates and spot treatment concentration:

<u>Chemical</u>	<u>volume product/acre</u>	<u>spot concentration</u>
Escalade 2	2-5 pint/acre	2 ¹ / ₄ oz/gallon H ₂ O
Aquamaster	1.5-2.3 quarts/acre	1.5% by volume
Transline	² / ₃ -1 ¹ / ₃ pint/acre	*

*Higher concentrations are not provided for on the label. Follow instructions to ensure rate of application is in accordance with the label directions.

It is recommended to use higher rates as provided on the labels of the recommended chemicals with the exception of Escalade2 on lawns. Monitor the time elapsed between application and symptoms. If thistle is not considerably reduced by the second season consider reducing the rate to ensure the plants are not top killed before the chemical has translocated throughout the root system of the thistle. Previous chemical management in Alaska has resulted in excellent results with fall applications.

Most of these infestations are small even when they cover a large area. Use of backpack sprayers or other hand held application equipment will likely be sufficient to cover the infestations while not spraying areas where thistle is absent. However, boom type equipment may benefit certain portions of sites. Aquamaster is a non-selective herbicide and should only be used with hand held equipment to avoid contact with desirable vegetation.

Adjuvants and surfactants:

Use of high quality surfactants are encouraged in the spray solution because plant hairs can prevent contact with the herbicide. The surfactant must be approved for aquatic use (such as *Agri-Dex*) if working around water or wetlands.

Transline: Label does not specify type or ratio of adjuvant. Rather the label specifies to follow the manufacture's instructions for mixing the adjuvant with the herbicide. Generally, 0.25-0.5% v/v (1 to 2 quarts/100 gallons spray solutions) is adequate.

Aquamaster: Label requires use of nonionic surfactant at 2 or more quarts per 100 gallons of spray solution. Consult the product label for conditions that might require higher ratios of surfactant to spray solution. If using *Agri-Dex* the label states 1-4 pints/acre and do not exceed 2.5% v/v.

Escalade2: Label indicates adding a surfactant may increase effectiveness, however it might decrease the selectivity of the product and damage grasses. If using this product on managed lawns for control of thistle you may wish to avoid using a surfactant. If a surfactant is desired use it according to manufacturers instructions, and ideally use a rate which is on the low end of what is recommended to minimize grass damage.

For a list of aquatic approved surfactants in Washington State see <http://www.ecy.wa.gov/programs/wq/pesticides/regpesticides.html>.

Application Timing:

All products may be applied to actively growing thistle in the fall. For the first year application a fall application about 2 weeks prior to the first killing frost is

recommended. The application is preceded by mowing in early July which forces the plant into the rosette state for application and prevents seed set in most circumstances.

DOT and others involved with management of this project need to be aware that for optimum uptake and translocation of these products, mowing, shredding, or soil disturbance should be avoided in treated areas for at least 14 days following application.

Other points pertinent to the use of specific products include:

Escalade 2: can contaminate groundwater when soils are highly permeable and the water table is shallow. Applications should avoid low humidity and/or high temperatures to decrease drift from evaporating droplets. Do not allow people or pets to enter treated area until the sprays have dried. Do not overlap spray patterns on grasses. Do not apply to surface water or areas where surface water is present.

Transline: users are advised to not apply clopyralid where soils have a rapid permeability and the water table is shallow. Do not apply transline directly to water or where surface water is present. Do not enter treated areas until sprays have dried. Spot application rates should be equivalent to broadcast application. Transline is not registered for turf or landscapes.

Aquamaster: product is best used in areas near water such as ditches where potential for overspray is possible because the thistle plants are growing to the water's edge. When densities of thistle are extremely low, Aquamaster has label instructions for hollow stem injection.

Please, always read and understand the label.